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ABSTRACT

This quarterly report on the Kailua Intermediate School's Excellence in Education Project provides information about the status of the project's four components, success of the project, replication of the project in other schools, and the project budget. The four component areas described include the skills laboratory, Homework Assist Program, U.S. Bicentennial, and the math skills component. Although the project ended in June, 1987, efforts to upgrade the basic skills program at Kailua Intermediate continue. Appendices provide a bibliography of print and film learning materials, descriptions of learning activities and games, a U.S. Constitution test, an eighth-grade group's video script on the 13th amendment to the Constitution, and 1987-1988 guidelines for the Mathematics Skills Laboratory (MSL). These guidelines focus on the rationale of the laboratory, its organization and management, evaluation of the MSL, and the lab budget. Appended to the laboratory guidelines are lists of MSL components, curriculum outlines and flowcharts, lists of equipment and textbooks, and student schedule and record sheets. (RH)

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EXCELLENCE IN EDUCATION (ERIG - 86-0061)
SUCCESS IN THE BASIC SKILLS I.D. NO. 84.171
FOURTH QUARTER REPORT

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SUCCESS IN THE BASIC SKILLS I.D. NO. 84.171
FOURTH QUARTER REPORT

INTRODUCTION

The fourth quarter Excellence in Education project report includes five major sections: First is the Current Status of the four components of the project - a) Skills Lab, b) Homework Assist Program c) U. S. Constitution Bicentennial, and d) Math Skills Lab. The other sections are entitled - Success of the Project, Replication of Project in Other Schools, Budget and Summary.

The project began on November 3, 1986 and ended on June 9, 1987. It generated many ideas for curriculum improvement in the Basic Skills Program at Kailua Intermediate School. One idea set the stage to provide all students with a systematic, comprehensive basic skills program across the content areas. In addition, teaching strategies such as mastery learning, cooperative learning, 4MAT Learning Styles, and Writing Across the Content Areas are some of the innovations that have been infused in the classrooms as part of the staff's commitment towards excellence in education.

STATUS REPORT ON THE COMPONENT AREAS OF THE PROJECT

The current status of the four component areas of the project are presented in the following order: 1) Skills Lab, 2) Homework Assist Program, 3) U. S. Constitution Bicentennial Activities, and 4) Math Skills Lab. This last report includes test data, products produced, and guidelines to the math skills lab which will begin its operation in September, 1987.

Each component area is followed with a discussion and recommendations based on its current status.

Skills Lab

The organization and curriculum of the Skills Lab remain the same as reported in the second quarter report. Two indicators determine the impact of the skills lab on the target group. The first indicator is the grades of the target group in the skills lab and in the team teaching environments. The second indicator is the student net gains in vocabulary and reading of the Gates McGinnitie Test which are expressed in Normal Curve Equivalents (NCE).

The target population are divided into two groups since the skills lab is a semester course. Group one, comprised of three sections of eighth-graders and one section of seventh-graders, received their basic skills instructions in the skills lab during the first semester. Group two, consisting of four seventh-grade sections, entered the skills lab in the second semester. In the alternate semesters, the students were in a team teaching environment taught by the regular education English teacher and a special education instructor.

The project began on November 3, 1987 at the onset of the second quarter. Group 1 students were in the skills lab environment for only 10 weeks as compared to students in group 2 who were in the lab environment for 20 weeks (third and fourth quarters). The first indicator results, letter grades, earned by the target population in the two environments are presented below:

TARGET POPULATION BASIC SKILLS GRADES FOR 1986-87

TABLE 1

GROUP 1 (IN PERCENTAGES)

	SKILLS LAB			TEAM TEACHING		
GRADES	1S QTR	2D QTR	1 SEM	3D QTR	4T QTR	2 SEM
A	4.5	10.7	6.6	7.5	4.0	5.4
B	26.7	36.5	22.1	25.1	30.3	21.4
C	48.2	42.1	60.4	41.6	44.6	46.4
D	18.6	8.7	8.8	17.4	19.6	25.7
F	2.0	2.0	2.0	7.4	1.5	1.1
**	(1)	(2)				

** (1) Students in modified skills lab environment.
(2) Students in the skills lab environment.

TABLE 2

GROUP 2 (IN PERCENTAGES)

	TEAM TEACHING			SKILLS LAB		
GRADES	1S QTR	2D QTR	1 SEM	3D QTR	4T QTR	2 SEM
A	2.8	7.6	7.6	12.2	15.5	15.5
B	41.7	36.1	34.4	41.4	47.1	46.3
C	38.5	30.9	33.8	33.8	21.7	21.7
D	13.2	17.8	16.8	12.1	15.7	16.5
F	3.8	7.4	7.4	.8	0.0	0.0

The data in Table 1 reveal that 47.2% of the students in group 1 earned A's and B's in the skills lab environment (second quarter) as compared to 31.2% in the modified skills lab environment (first quarter) and 26.8% (second semester) in the team teaching environment. Excluding the seventh-graders from group 1, the data in table 1 vary slightly between 2 to 3 percentage points.

An inspection of table 2 reveals 41.0% of the students earning A's and B's in the team teaching environment (semester 1) as compared to 61.8% of them earning A's and B's in the skills lab environment.

Two generalizations are made based on indicator 1:

1. The seventh-grade population met mastery (A's and B's) at higher levels than the eighth-grade group in both teaching environments.

2. A larger percentage of students received A's and B's in the skills lab environment as compared to the team teaching model.

Indicator 2, the Gates McGinnitie Vocabulary and Reading Test, is presented as net gains and losses in Normal Curve Equivalents. In the four graphs below, the following legends are used: XXX = 2 students and xxx = 1 student.

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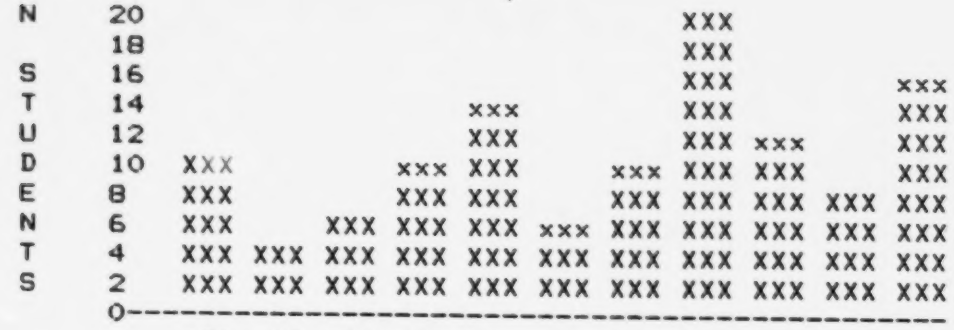
GRAPH 1

GATES McGINNITIE VOCABULARY TEST
SEVENTH - GRADERS
N = 110 Students

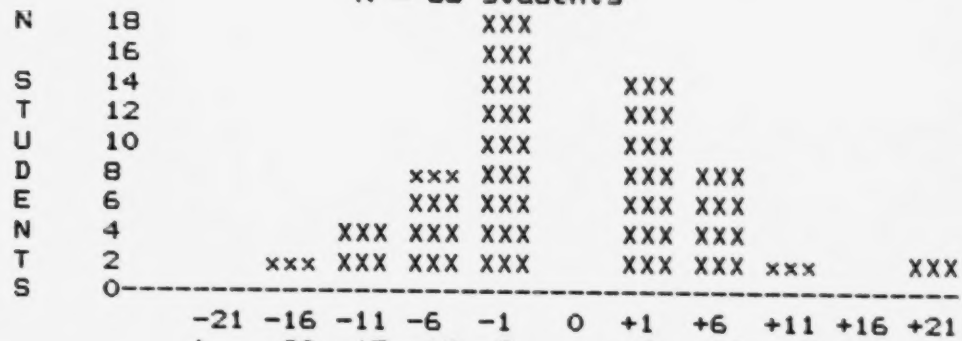
GRAPH 2

GATES McGINNITIE READING TEST
SEVENTH - GRADERS
N = 110 Students



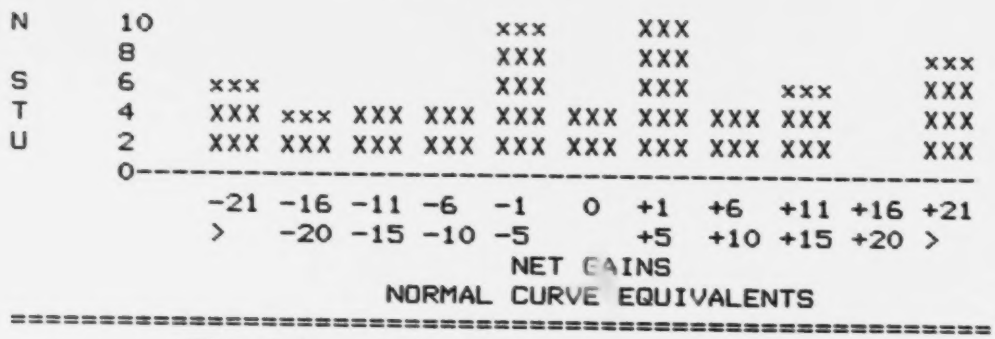
GRAPH 3

GATES McGINNITIE VOCABULARY TEST
EIGHTH - GRADERS
N = 55 students



GRAPH 4

GATES McGINNITIE READING
EIGHTH - GRADERS
N= 55 Students



The data of the Gates McGinnitie test are summarized for the two grade levels of the target population.

1. The data revealed that 56% and 62% of the seventh-graders made NCE gains in the vocabulary and reading tests, respectively, however, 44% and 38% showed NCE losses.

2. In the eighth-grade, 45% and 55% of the students showed NCE gains in the vocabulary and reading tests respectively, however, 55% and 45% showed losses.

Discussion

Both indicators 1 and 2, reveal the need to examine the curricula and general operation procedures of the skills lab and the team teaching innovation. The seventh-grade skills lab curricula need refinement; however the eighth-grade skills lab curricula require in-depth study.

Although both indicators are used to determine the impact of the skills lab on skills improvement, they are not the sole indicators that determine whether a student exits the skills lab at the end of the year. Other criteria used for exiting the lab include: curriculum based assessments, study skills, and teacher recommendations based on entry skills required in the average English classes. Therefore, indicators 1 and 2 provide only partial evidence of the impact of the skills lab.

The team teaching innovation appears to have less impact than the skills lab as reflected by

indicator 1. However, the seventh grade teams noted satisfaction with this teaching model during the alternate semester.

Several shortcomings were noted by some of the teams which can be resolved with improved communication and planning among the teachers and workshops in understanding the concepts and techniques of team teaching.

Teachers have expressed concerns relating to the Gates McGinnitie pre/post testing environment. Too many students appear to have a "laid back" attitude while taking these tests. Students need to learn that test-taking is an integral part of the curriculum.

The testing schedule for eighth-graders should be reviewed since they also take the Stanford Achievement Test (SAT) for a two week period in April and May. This year because of time constraints, the Gates McGinnitie Test which takes two days to administer followed the SAT testing within two weeks.

Recommendations

The following recommendations were made:

1. The skills lab model to improve basic skills continues as the core curriculum for low achieving students.

2. The basic skills task force maintain its efforts to refine and implement the skills lab curricula and operational plans. The task force examines the eighth-grade skills lab curricula and make changes as needed.

3. Skills lab begins at least one week or sooner after the start of each semester.

4. New teachers are provided with in-depth training in the curricula and operations of the skills lab.

5. Teachers in the team teaching environment are given an option to teach as a team or to split the class in half, each teaching his/her own class.

6. Teachers desiring to teach in teams are given workshops on effective team teaching techniques.

7. As part of the curriculum, teachers include test-taking instructions and translate the results in the teaching-learning process with the students.

Homework Assist Program

No changes were implemented in the organization and operation of the Homework Assist Program (HAP) since the last report. Two indicators are used to determine the impact of this component of the project.

First, a monthly record was kept to determine the number of users in this program. The table indicates that at the end of the year, 946 users attended the HAP.

NUMBER OF STUDENTS USING THE HOMEWORK ASSIST PROGRAM

NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
0	41	116	213	220	154	168	34	946

The next indicator is a student survey. Twenty-seven students were chosen randomly to participate in the survey. The results were:

1. Who referred you to the HAP?
   a) Teacher----------14.8%
   b) Counselor----------25.9%
   c) Parent---------- 7.4%
   d) Self----------18.5%
   e) Combination of the above-------33.4%

2. For which subject are you in HAP?
   a) English----------15.4%
   b) Math----------19.2%
   c) Social Studies----------7.7%
   d) Science----------11.5%
   e) Others---------- 7.7%
   f) Combination of the above-------61.5%

3. How many times have you used HAP?
   a) 4 to 5 times per week----------25.9%
   b) 2 to 3 times per week----------11.1%
   c) 1 time per week----------14.8%
   d) less than 1 time per week------48.2%

4. In general, has HAP helped you to be a better student?
   a) Yes----------77.8%
   b) No----------11.1%
   c) No response----------11.1%

5. Should we continue HAP next year?
   a) Yes----------81.5%
   b) No----------11.1%
   c) No response---------- 7.4%

Discussion

In general, parents, staff members, and students valued the Homework Assist Program. Students were given an opportunity to describe their feelings about HAP in general. Some responses were " HAP teachers were helpful", "makes me try harder to get my homework done", "grades are improving", "only way I will do my homework or make-up work", and "you have to stay until 3:30 so you may as well do your homework".

Recommendations

The following recommendations were made by the Homework Assist task force:

1. The Homework Assist Program operate under the same guidelines and begin in the second week of September.

2. Teachers refer students to HAP as soon as it is ascertained that they demonstrate a pattern of not completing homework or class work instead of waiting until the last two weeks before the end of the quarters.

3. The school sets aside at least one day per week where all teachers are required to be available for providing tutorial help to their students. On other days, student assistance will be arranged individually with his/her teacher.

4. Use of parent help in HAP will be solicited through the PTSA as needed.

U. S. Constitution Bicentennial Activities

As part of the Basic Skills Program, the U. S. Constitution Bicentennial activities comprised of two basic parts. First, products were produced to help the students reinforce basic skills and the learning of concepts and facts. Second, a part-time teacher participated directly with students in two social studies classes during the second semester.

The following products are attached in the appendix of this report: 1) U. S. Constitution Bicentennial Bibliography, Appendix 1, 2) Directions to four learning games relating to the U. S. Constitution for classroom use, Appendix 2, 3) U. S. Constitution Test used as both a pre and post test, Appendix 3, and 4) A script for a video production, Appendix 4.

Major activities in which a part-time teacher interacted directly with students were: 1) Writing contests, 2) Using the games as part of the Constitution unit, 3) Library research, and 4) Video production.

The U. S. Constitution pre/post tests were administered to two groups. One group consisted of regular education students and the other comprised of special education students. The pre-test was given before the unit. After studying the unit with their teachers, the game formats were introduced for a one week period as reinforcement of the facts and concepts. Following the review of the unit using the games, the post-test was administered.

The same test, 30 multiple choice questions, was used as the pre/post test. The data are presented below:

U. S. Constitution Pre/Post Test Scores

Percent Correct	Regular Education N = 17 Students		Special Education N = 14 Students	
	Pre Test	Post Test	Pre Test	Post Test
100-90%		6		1
89-80%		3		3
79-70%		3		4
69-60%		4		2
59-50%		1	1	2
49-40%			4	2
39-30%	3		3	
29-20%	12		3	
19-10%	2		3	
9- 0%				

The post test results indicate that most students made significant gains after the game format treatment. Seventy-five percent of the regular education students met mastery at 80% or better in the post-test as compared to 69% of the special education students.

Discussion

Project members spent most of their time planning and preparing the products for the U. S. Constitution unit. The treatment used in the U. S. Constitution unit was to test the receptiveness of the games as part of the unit by the students and teachers. The test instrument at this point in time was used for grading purposes.

A more rigorous treatment and testing of the students are planned for next year.

Recommendations

The following recommendations were suggested:

1. The social studies teachers form a task force to study their curriculum and include non-tradition forms of teaching-learning activities.

2. The social studies teachers revise the U. S. Constitution pre/post tests and prepare an alternate post-test.

3. The social studies teachers have a control and experimental group in testing the validity and reliability of the treatment used in the U. S. Constitution unit.

4. The social studies teachers continue to have their students participate in writing contests.

Math Skills Lab

In September 1987, the Math Skills Laboratory opens with the cooperation of the math and the special education departments. The target group consists of seventh-graders in the low achieving sections. Each section has three instructors in a cooperative teaching model. The guidelines for this component of the basic skills program are in Appendix 5.

SUCCESS OF THE PROJECT

The problems of teaching basic skills to the low achieving students have been a perennial concern at Kailua Intermediate School. It was predicted that at least 50 to 60% of the seventh-grade skills lab students would exit the skills lab at the end of the year. About 55% of the students met the criteria to exit the lab and were placed in the average English classes next year. The population that repeats the skills lab in grade 8 is of great concern to the staff. A rigorous examination of the basic skills program for this population needs further study by the basic skills task force.

Another indicator that lends additional evidence of the success of the skills lab is the Stanford Achievement Test scores administered to all eighth-graders. However, current results of the SAT scores are unavailable at this time.

Of greater importance is the awareness and implementation of a systematic, comprehensive basic skills program across the content areas. It continues as one of the major priorities of the school climate objectives of this school. Such an approach to the basic skills de-compartmentalizes the problems of teaching the basic skills. The English department still takes the leadership role in the basic skills

program; the other subject areas are included as important partners in helping the students realize their potential.

The project objectives also included teacher inservice in various teaching strategies such as mastery learning, cooperative learning, 4Mat learning styles, writing across the content areas, and computer technology.

To coordinate the basic skills program, the administrator meets with the various departments to include basic skills goals and teaching strategies in all subject areas.

REPLICATION OF THE PROJECT IN OTHER SCHOOLS

To replicate the Basic Skills project in other schools require input from the staff as to the direction it wishes to take. Staff involvement is necessary to a point where a core of teachers will take leadership roles and include as many staff members in the ownership of project. Since this is an ongoing project for several years, it helps to have a stable teaching staff.

Replication of the project also requires investment of time and energy and flexibility among the staff members. Project timelines, checkpoints, and staff responsibilities are updated regularly in study sessions since much of the planning and implementation are done by the teachers. It is incumbent upon the administrative staff to provide an adequate budget to carry out the project to its fruition.

A liaison at the district level, who is involved in basic skills education, is helpful as a resource person for the staff members.

BUDGET

The expenditures for the fourth quarter are:

Salaries - $4,604.29	Balance - $388.71
Supplies - $330.00	Balance - $32.82

SUMMARY

Although the project ended on June, 1987, the efforts to upgrade the basic skills program at Kailua Intermediate continues as one of the major priorities in curriculum development. Task forces will continue to assess the basic skills program to determine direction and implement changes as needed.

APPENDIX 1

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APPENDIX 2

PHOTOGRAPHS OF TWO GAMES

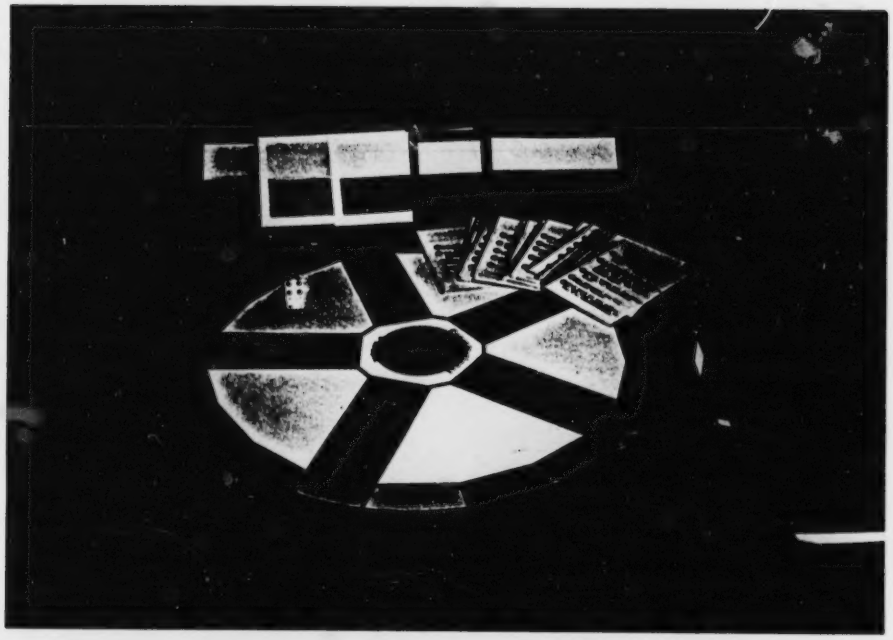


Photo 1: "Constitutional Pursuit"

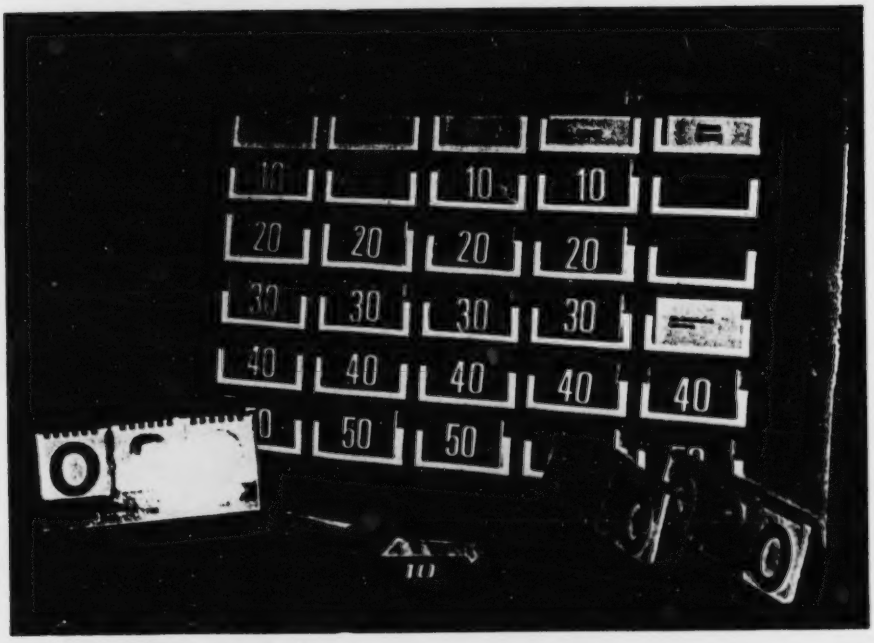


Photo 2: "The Question Is Yours"

APPENDIX 2a

"CONSTITUTIONAL" PURSUIT

Equipment

Each game set includes: game board, die, question and answer cards, 5 scoring pockets, 25 scoring tabs (5 of each color), 5 playing pieces.

Rules of Play

Each player receives one playing piece and one scoring pocket. The die is then rolled by each player, with the player rolling the highest number beginning play. Play starts in the center circle. The first player rolls the die and moves in one direction only for the number of spaces indicated on the die. He/She must then answer a question in the category which corresponds with the color of the space on which he/she has landed. If he/she answers the question correctly, he/she receives a corresponding colored tab to place in his/her scoring pocket, then rolls the die and proceeds to another square where he/she must answer another question. Play continues in this manner until he/she misses a question. Play then moves to the player to the left. Each player may collect only one tab in each color; however to continue his/her turn the player must continue to answer questions correctly no matter whether or not he/she has a tab of that color already.

Object of the Game

The object of the game is to get one of each colored tab in one's scoring pocket, then move to the center circle (this must be done on an exact roll) and answer a final question. The final question's category will be chosen by a random drawing. One tab of each color is placed face down on the table and the player selects one. If the player fails to answer the question correctly, play moves on to the next player to his/her left and the player who missed the center circle question must wait until his/her turn comes around again. He/she need not leave the center circle and reenter, however. When he/she has answered a question while in the center circle, he/she has won the game.

Category Key

Red	General Constitution
Purple	Judicial Branch
Yellow	Legislative Branch
Green	Executive Branch
Blue	Amendments

"THE QUESTION IS YOURS"
(Based on "Jeopardy")

Equipment

One large game board with room for 25 answers (5 answers in each of 5 categories), 25 phase one answers, 25 phase two answers, 50 point value cards, 5 category cards, and 3 noise makers.

Rules of Play

Three students may play each game. The student to begin play is selected by drawing numbers. He/she selects a category and a point value. The answer associated with that category and point value is given, then the first player to sound his/her noisemaker is allowed to supply the question. If he/she is correct, he/she selects the next category and point value. Play continues in this manner until 10 minutes time is called and the board is reset with 25 new answers and point values, these being more difficult and of a higher point value than those in phase one. The player with the lowest score in phase one begins phase two play. The player with the highest score at the end of phase two is the winner. The game may then be repeated as many times as necessary to allow all those who wish to play a chance to participate. There may be play-offs to determine the class champion.

TEAM CHALLENGE
(Based on "College Bowl")

A questioner (either a student or the teacher) asks three teams of four students each question which have a stated point value. The team with the highest score at the end of the time period wins.

Rules of Play

Each team member has a noisemaker for use during "toss-up" questions. The questioner asks a "toss-up" question that has a given point value. The player who sounds his/her noise-maker first has the right to answer that question. If he/she is correct, the team is given the opportunity to answer a "bonus" question. Team members may discuss the answer, but the answer of the team's captain is final. If the player answers the "toss-up" incorrectly, a player from another team may sound his/her noise-maker and attempt to answer the question. Play continues for 20 minutes. The team with the highest number of points at the end of the time period is the winner.

The game may be repeated as many times as necessary to allow all those who wish to play a chance to participate. Play-offs may then follow to determine the class champions.

CHARADES

Give students a list of vocabulary words dealing with the U. S. Constitution. (A list is available on page 3 of YOUR GOVERNMENT.) To begin, have the students give the teacher a word to which he/she must act out the definition. After several words, ask if any students would like to try. During the last 10 minutes of class give a short matching quiz on the vocabulary words.

GRAPHICS

Post a chart of the symbols to use in Charades so students may refer to it.

How to indicate:

1. Number of words
2. Number of syllables
3. Small word (a, an, as, it, at, in, on, and, of, if, is)
4. "T" words (the, this, that, then, than, there, their)
5. "Sounds like"
6. "Shorten the word"
7. "Lengthen the word"
8. "Exactly right"
9. Book
10. Song
11. Event
12. Person
13. Movie
14. Quotation
15. T. V. program
16. "Whole concept"

APPENDIX 3

U. S. Constitution Test

MATCHING Place the letter of the word in column II in the blank space next to the number of the definitions in column I.

COLUMN I	COLUMN II
___1. Branch of federal government headed by the President.	A. 6 years
___2. House of Representatives is part of this branch of the federal government.	B. George Bush
___3. To make something known.	C. enforces laws
___4. He presided over the Constitutional Convention.	D. Executive Branch
___5. Introduction to the U. S. Constitution.	E. declare
___6. Role of the Executive Branch.	F. 2 years
___7. The length of a U. S. Congressman's term of office.	G. Legislative Branch
___8. The length of a U. S. Senator's term of office.	H. 4 years
___9. The length of a U. S. President's term of office.	I. Preamble
__10. Another name for the legislative branch.	J. George Washington
__11. He was the oldest member of the Constitutional Convention.	K. Benjamin Franklin
___12 He is our current Vice President.	L. Congress

TRUE OR FALSE Mark "T" in the blank in front of any statement which is true. Mark "F" in the blank in front of any statement which is false.

___1. Changes or clarificationss to the U. S. Constitution are done with amendments.

___2. In order to be elected U. S. President, one must be at least 30 years of age.

___3. There are six articles in the U. S. Constitution.

___4. There are nine Justices on the Supreme Court.

___5. All U. S. Supreme Court Justices are men.

___6. Benjamin Franklin signed both the Declaration of Independence and the U. S. Constitution.

___7. The federal government has two branches.

___8. The number of representatives each state sends to the U. S. House of Representatives depends on its population.

___9. The U. S. Constitution begins with the words "When in the course of human events..."

__10. The U. S. Suprement Court is the highest court in the land.

FILL IN THE BLANK Write the correct word in the blank(s) in the following statements.

1. Each of the fifty states has _____ Senators.

2. Supreme Court Justices are appointed by _____.

3. The U. S. Constituition was written in _____.

4. The _____Branch of the federal government interprets laws.

5. The U. S. Constitution has _____ amendments.

6. Another name for the first 10 amendments to the U. S. Constitution is _____.

7. The _____ Branch of the federal government makes laws.

8. _____ serves as President of the U. S. Senate.

APPENDIX 4

VIDEO SCRIPT

This video script was written by seven students from the eighth-grade social studies class. The students chose the 13th Amendment and wrote a short play which they video taped. The students learned that there is more to the 13th Amendment and its implications than the freeing of the slaves during the Civil War.

INTRODUCTION

This story contains fictitious dialogue based on factual events which took place in Hawaii, Las Vegas, California, and Mexico. The only real names are those of the student actors.

SCENE I

The scene opens with a telephone ringing at the police station and an officer answers the telephone.

POLICE	HPD, Officer Yee Hoy.
NEIGHBOR	(He is heard but not seen.) I have a suspicion of a possible violation of the 13th amendment to the U. S. Constitution.
POLICE	Why are you suspicious?
NEIGHBOR	The people who moved in next door brought two Filipino servants with them when they came and although the people are in and out all the time, we have never seen the servants leave the house.
POLICE	May I have your name, please?
NEIGHBOR	Spencer Baldomero.
POLICE	Your address and telephone?
NEIGHBOR	4341 Portlock Apartment #20. 395-1811.
POLICE	Ok, Mr. Baldomero, we'll check it out.

SCENE II

The scene opens with the policeman at the door of a house with the number 4341 on the front, and a man has answered the door.

POLICE — Are you the person who called about the possibility of slaves being kept next door?

NEIGHBOR — Yes, I'm the one.

POLICE — Which apartment?

NEIGHBOR — The one on the right (he points) at Apartment #21.

POLICE — Do you know their names?

NEIGHBOR — No, I've never met them.

POLICE — When did you first notice this?

NEIGHBOR — About 2 weeks ago.

POLICE — Thank you for your cooperation.

SCENE III

The scene opens with the policeman knocking on another door. The Lady answers the door.

POLICE — Hello, my name is Officer Yee Hoy. We have received a complaint that you are keeping slaves.

LADY — Are you sure you have the right apartment?

POLICE — This is the address we were given. I'd like to ask you a few questions.

(A man comes to the door.)

MAN — Hey, What,s going on?

LADY — The officer wants to ask us some questions about keeping slaves.

MAN — Who said we had slaves?

POLICE — That's not important now. Are you keeping slaves?

LADY — No! no, that's ridiculous!

POLICE — Well, can I have a look around?

MAN — Do you have a warrant?

POLICE Yes, I do. Now may I have a look around?

MAN I guess I don't have any choice.

(The policeman looks around. As he passes a closet he hears the sound of someone crying.)

POLICE What's in the closet?

LADY Nothing. We haven't opened it since we moved in.

POLICE May I have a look?

LADY We don't have the key.

POLICE I'm going to have to use force.

(He opens the door and finds two ladies hiding inside.)

POLICE Who are these people?

MAN I don't have to answer any more questions without my attorney present.

CONCLUSION:

The couple was arrested and charged with violation of the 13th Amendment of the U. S. Constitution. They were brought to trial and found guilty. In the trial, the maids testified that they were held against their wills, without pay, to clean and care for the house.

APPENDIX 5

KAILUA INTERMEDIATE SCHOOL
THE MATHEMATICS SKILLS LABORATORY
GUIDELINES FOR 1987-88

INTRODUCTION

The special education and mathematics departments propose the establishment of a math skills lab to meet the needs of the low achieving math students. Both departments share a similar population of students consisting of approximately 18 to 23 % of the total school population. The proposed skills lab model is part of a comprehensive, ongoing program at the school to help these students increase their proficiency in language arts and mathematics skills, both of which are addressed in this labortory model.

The skills lab model supports the mission and belief statements of the school. It provides a varied, creative learning environment, a curriculum that enhances learning, teaching strategies that address the various learning styles of the students, and an atmoshphere conducive for development of responsible behaviors. This teaching-learning model expects students to realize their academic, social, and personal potential.

Three seventh-grade math sections comprised of about 30 students per section with a teaching team of three instructors begins in September 1987.

The installation of the skills lab requires cooperation and coordination among the teachers involved. The proposal for this model includes: 1) Rationale of a Math Skills Lab, 2) Organizing the Math Skills Lab, 3) Managing the Math Skills Lab, 4) Evaluaton Process, and 5) The Budget of the Math Skills Lab.

1. RATIONALE OF A MATH SKILLS LAB

At the end of the 8th grade year, students at Kailua Intermediate School take the Stanford Achievement Test (SAT), the statewide test administered in grades 3, 6, 8, and 10. School data since 1982 has been collected and analyzed for both the language arts and math sections of test. The results are tabulated below:

SCHOOL PROFILE

STUDENT ACHIEVEMENT: STANFORD ACHIEVEMENT TEST

	GRADE 8 SAT MATH			GRADE 8 SAT READING		
SCHOOL YR.	BEL. AVG (1-3)	AVG (4-6)	AB. AVG (7-9)	BEL. AVG (1-3)	AVG (4-6)	AB. AVG (7-9)
1982-83 %	18	51	31	21	57	22
N	85	254	154	105	286	115
1983-84 %	18	52	30	18	61	21
N	95	280	162	97	327	115
1984-85 %	15	59	26	17	61	22
N	70	281	127	80	290	109
1985-86 %	18	49	33	15	63	22
N	74	206	141	62	264	96
1986-87 %	*					
N						

* Data available in August 1987

For the past 4 years, there has been a steady decline in the population for stanines 1 to 3 in the reading section of the SAT; however, in math for the same stanine range, the population percentages have remained constant at approximately 18%, showing no significant change. The positive results in reading scores on the SAT indicate that the language arts skills lab, which has been in operation for four years, has significantly helped the population of low achieving students in improving reading comprehension skills.

The school profile of the Stanford Achievement Test revealed the need to change instructional delivery for the low achieving youngsters in the mathematics program. The math and special education departments responded by designing the math skills lab using the language arts skills lab as a model to meet the needs of the target population.

Two major modifications have been included in this math lab proposal. The length of the math lab is for a year as compared to the language arts skills lab which is for one semester and the addition of a language development component, "Word Problems", where comprehension, vocabulary development, writing, study skills, and thinking and decision making skills are systematically emphasized.

The latter modification supports the concept of a comprehensive basic skills program across the content areas. The concept emphasizes to the staff that helping students with basic skills is not the domain of teachers in specific subject areas such as language arts and math, but the responsibility of all teachers in all subject areas.

1.1 Need Assessment

Since 1982, the SAT math scores for the low achieving students have plateaued at 18%, except in 1984. Apparently, the current math program has not effectively addressed the needs of the low achieving students in stanines 1 to 3. To address this need, the concept of the math skills lab is determined as the best model for Kailua Intermediate School in light of two on-going projects: 1) the Excellence in Education Project which is a comprehensive basic skills program that includes all content areas and 2) the Primary Instructional Needs Project for Low Achieving Students (PINS), a basic skills project in language arts and mathematics. Currently both projects are being reviewed and refined.

1.2 The Target Population

Three sections of regular education, seventh-grade students and three special education classes comprise the target population. These students score in the lower stanines - one to three - of the math section of the Stanford Achievement Test. Their curriculum - based assessments indicate delays of two or more grade levels. They comprise about 22% of the seventh-grade population.

A subgroup of the target population is the specific learning disabled students who share similar problems of the mainstream target population. The subgroup exhibits a wide range of unique learning problems; however, they can be addressed in a laboratory environment. The lab provides these students an opportunity to learn their math concepts and skills in the mainstream setting. They comprise about 7% of the target population.

Although there is much diversity among the students in the target population, they all exhibit delays and deficits in understanding the basic math concepts and computational skills. In general, many of them need to learn better study skills and develop better study habits. Another characteristic which is prevalent among these students is the need to improve their self concept and self esteem.

The population is further defined by the results of the Stanford Diagnostic Math Test that is given to all students in September. General project demographics on gender, ethnic background, economic status of family, etc. which describe the population in greater depth can be extrapolated from the

Excellence in Education Proposal, the Second Quarter Excellence in Education Report, and the School Accreditation Report.

1.3 The Goals of the Math Skills Lab

Several goals are established for the math skills lab. The goals are divided into two parts:

The school goals are:

1) to systematize the basic skills program across the content areas and to articulate the program with all staff members;
2) to establish a math skills lab as an instructional delivery model to help students in the lower stanines of the SAT achieve academically, socially, and personally;
3) to improve teaching-learning environments with staff development assistance with workshops in teaching strategies;
4) to improve communication across departmental levels to coordinate the content and skills that are introduced, developed, and reinforced with the target population;
5) to decrease the percentage of students scoring in the lower stanines of the Stanford Achievement Tests at the end of their 8th grade year; and
6) to infuse career education as a strategy in the content areas to help prepare students for their high school and post high school career plans.

The students goals are:

1) to increase individual Stanford Diagnostic Math scores by 5 NCE points;
2) to achieve mastery at 80% or better in all lessons and tests;
3) to receive final grades of A's or B's in their report cards;
4) to have an attendance record of no more than 5 days absence for the year.

At the end of the project year, 80% of the target population is expected to attain the student goals.

2. ORGANIZING THE MATH SKILLS LAB

The efforts to organize the math skills lab require collabrative skills and an investment of time by the teachers involved. The teachers need to direct their attention in designing an instructional system that will motivate students to attain the desired goals.

Nine factors are examined in organizing the math skills lab: 1) target population, 2) staff, 3) curriculum components, 4) instructional delivery, 5) location and space, 6) time,

7) testing and placement procedures, 8) equipment and supplies, and 9) checkpoints.

2.1 The Target Population

To organize a skills lab, the target population is identified by:

1) individual Stanford Achievement Test scores;
2) individual Stanford Diagnostic Math Test scores;
3) pupil progress records; and
4) the number of students in the low achieving classes and in the special education math classes.

2.2 The Staff

The staff in the math skills lab consists of a special education teacher, a mathematics teacher, and a project teacher from the "Primary Instructional Needs" project funded by the State for intermediate schools. All teachers are certificated in mathematics. The lab director is the special education teacher and teaching assignments to the three components are determined by the team. Specific responsibilities for each team member are determined by group consensus.

To facilitate problem solving and conflict resolution, the team members meet as frequently as possible for open dialogue and to implement solutions and changes; hence, a common preparation time daily is highly recommended.

2.3 The Curriculum Components

The skills lab consists of three component areas: computation, word problems (emphasis on vocabulary development, comprehension, and writing), and application. (Appendix A-1 and A-2: Skill Lab Components - Description and Goals)

The computation program is the Basic Math Skills Program produced by Addison Wesely Publishing Company. Supplementary, lateral materials are derived from various math programs or are developed by individual teachers can be located in Appendix B. The scope and sequence for the computation program is in the Teacher's Manual and is reproduced in Appendix C-1 and C-2.

The word problems component is developed by the teacher based on the current needs of the students. This instructor plays a key role in coordinating and linking the skills lab components. Students demonstrate usage of the terms by writing problem stories. Thinking and decision-making skills are taught by using flow charts with appropriate questioning and feedback techniques.

The application component consists of topics that are extension and reinforcement activities of concepts and skills learned in the computation and word problems components. Many of

the activities are group oriented to foster collabrative skills and social interactions.

2.4 Instructional Delivery

In the computation component, students follow a highly structured and individualized, prescribed program. Students work at their own pace individually or in small groups using concrete and visual materials. Teaching strategies will focus on the learning styles of the individual students. Students will have access to programs using the tape recorders and the computer. Computer literacy is an integral part of this component.

Small group instruction is the teaching mode for the "Word Problems" component. Direct teacher instructions lead to guided practice with frequent, group feedback, independent practice, teams practice, and a short test.

Cooperative learning is utilized to help students learn collabrative skills and content. In this learning strategy, students expect individual accountability as they are given individual tests or activities to demonstrate proficiency in the content area.

At the end of the week, students participate in a variety of application activities. The teacher presents direct instruction to the entire class followed by peer tutoring and other forms of interaction in cooperative teams. Individual accountability is also built in the cooperative learning lessons in the form of individual tests or activities demonstrating individual proficiency.

2.5 Student Testing and Placement Procedures

In the timeline of the math skills lab, pre/post testing periods are established. Teachers administer the Stanford Diagnostic Math Tests and compile data profiles for all students within a given period. Student profiles in the three sections of the tests, numeration, computation, and application, are compiled to determine initial placement in the components of skills lab.

Each student begins the computation program as determined by the his/her baseline from the Stanford Diagnostic Math Tests - computation section. Upon placement in the appropriate content area, the student takes the curriculum based pre-test. The student's score in the pre-test of each area determines one of the three mastery cycles he/she will follow. The flow chart for students working through the units is in the Teacher's Manual which is reproduced in Appendix C.

2.6 Location and Space

The math lab is located in two separate rooms adjacent to each other. Both classrooms are the same size as any other classroom in the school. This is the ideal environment for

teaching and laboratory management as it provides for flexibility in grouping, efficiency in time management, a central location of equipment and supplies, and immediate communication among the teachers.

2.7 Time

The math lab sessions follow the regular school schedule - one 50 - minute period per day, five times per week. If flexible time management is required, it occurs within the 50 minutes alloted for each period. The math skills lab model is year-round lab.

2.8 Equipment and Supplies

The laboratory uses the equipment that is available in the school. Supplies and text materials are the major expenses of this laboratory. Start-up expenses includes, xerox paper, blank diskettes, the computation skills workbooks, manila folders, oak tag paper, paste, scissors, chart paper, math games, prepared ditto booklets for lateral and supplementary activities, nath games, and audio-visual programs. Equipment, supplies, and text materials used in the lab are listed in Appendix D.

2.9 Checkpoints

Some checkpoints are: dates for start-up and closing times, testing periods, student progress checks for report card grading and student intervention needs, formal and informal assessments for curriculum improvement and needs, and comprehensive, project assessment. As other concerns arise, a team member is responsible to include them in the records for future reference.

3. MANAGING THE SKILLS LAB

For many students, the skills lab model is a new experience. Therefore, the management system needs to be written, posted, and practiced. For some students with poor organizational skills, the teacher leads the student through the program for several weeks.

3.1 Personal Materials

All students bring to the lab a red spiral (8 1/2 x 11) notebook for their computation component and a blue, spiral notebook for the word problems component. These notebooks remain in the component areas. Other essential supplies include pencils, rulers, a protractor, and a compass.

3.2 The Student's Lab Schedule

In this model, all students in a five-day week have three days of computation, one day of word problems, and one day of applications. The laboratory schedule is:

COMPONENT		DAY OF THE WEEK				
		MON	TUES	WED	THURS	FRI
COMPUTATION	GROUP	A B C	A B D	A C D	B C D	
WORD PROBLEMS	GROUP	D	C	B	A	
APPLICATIONS	GROUP					A,B,C,D

If computers in the classroom become available, they will be infused in all three component areas.

3.3 Individual Folders

The laboratory prepares a manila record folder for all students in which the students find their daily schedules on the outside cover. It directs the students to their study area by listing the component, day, teacher name, and room number.

On the inside, left section of the folder, the daily grade sheet with date, daily grade, test grade homework grade, and comments is located. The inside, right section of the folder is reserved for pre/post tests. Record folders are stored in designated boxes by periods and are color coded by periods. (Appendix E-1 and E-2: Management Forms - Student Schedule and Daily Assessment Sheet)

3.4 Rules and Procedures

All component areas operate under the same classroom rules and routine procedures which are posted. Consistent disciplinary consequences provide structure and efficiency of student movement from one area to another. Students will be informed from the onset about the rules and procedures.

3.5 Homework

Monday through Thursday, students turn in their home assignments the following day in the appropriate boxes.

Lab teachers provide after school assistance on specified days. On other days, students are encouraged to use the services of the Homework Assist Program.

3.6 Grading

The minimum level of mastery in all skills lab assignments is 80%. Non-mastery students are required to go through the re-teaching process focusing on specific variables followed by guided practice, independent practice, and a retest before progressing to the next level.

Frequent, distributive practice and testing provide teachers evidence of students' retention of the content learned. Teachers provide intervention plans for students who have not reached minimum mastery in the second cycle of learning by focusing on pre-requisite skills and concepts.

Record keeping is maintained on two forms - the student schedule form and the daily assessment sheet in the individual manila folders. Weekly, comprehensive grades give students a sense of their progress in the skills lab. Each quarter, students receive their report card grades.

3.7 School-Home Communication

At the onset of instructions in the lab, students will take home to their parents, a letter from the laboratory instructors which will include:

1) the purpose of the math skills laboratory;
2) the personal materials needed;
3) the laboratory rules;
4) the grading procedures; and
5) the homework procedures.

Included in this letter, is a "signature section" that parents are asked to sign and return that the communication is received and understood by them.

4. EVALUATION PROCESS

Evaluating the math skills lab is an ongoing process. Several checkpoints are designated on the timeline to evaluate specific aspects of the laboratory operation - the curriculum, the delivery system, management system, the teaching - learning environment, communication among team members and across the content areas, and infusion of career education.

Evaluating the students is a daily process. Students are assessed daily on attendance, daily work, and homework. At the end of each unit, students take the unit examination with 80% as the criterion for mastery. For students who need adjustments in the program, intervention activities are planned. Students are given quarterly grades at which time, the team will evaluate each student based on several component grades.

At quarterly checkpoints, the target population's report card grades, attendance, and productivity rates will be tabulated and analyzed. Areas and components of the lab that need adjustments will be addressed with policy or procedural changes.

The NCE gains on the Stanford Diagnostic Math Test is another indicator that will be used to evaluate the target population.

6. THE BUDGET

Most of the resources are already available in the school. The minimum start-up budget for the math skills lab is primarily for supplies and text materials.

1) Supplies..... $300.00

2) Equipment (Tape recorders)..... 400.00

3) Text Materials..... 1500.00

Tape recorders are optional equipment. The operating budget of the math skills lab is shared by the special education and math departments.

7. SUMMARY

As part of the comprehensive basic skills program at Kailua Intermediate School, the math skills lab is viewed as a viable component to help students achieve academically, socially, and personally. The lab environment provides students with a varied curriculum that has been designed to meet the individual needs of low achieving youngsters. The program focuses on math skills as well as language arts skills.

In two years, the target population will take the Stanford Achievement Test at which time the impact of the math skills lab can be ascertained as a major factor influencing basic skills improvement in the target population.

In the interim, the Stanford Diagnostic Math Test, academic grades, attendance, and productivity serve as impact indicators of the math skills lab target population.

MATH SKILLS LAB COMPONENTS - DESCRIPTION AND GOALS

APPENDIX A-1

COMPONENTS	DESCRIPTION	GOAL
COMPUTATION	Computation component is individualized and self pacing based on the child's needs. There are three major component: whole numbers, fraction, and decimal/percents.	To increase proficiency in computation skills and concepts.
WORD PROBLEMS	In the word problem component students are given small group instruction. They also work in peer cooperative learning teams. Language Arts skills are infused in this segment:comprehension vocabulary development, and writing. In addition, this component links the computation component with the application component.	To increase proficiency in comprehension, writing, thinking and decision making skills.
APPLICATION	Students are given "hands on" activities in this math component. The content consists of consumer math, measurement, geometry, sepcial projects, and games. Computer application is included.	To develop compentencies in the basic skills, understand math relationships, apply math concepts in personal projects, and learn collobrative skills.

MATH SKILLS LAB COMPONENTS APPENDIX A-2

COMPUTATION	WORD PROBLEMS	APPLICATIONS
LEVEL I: WHOLE NUMBERS	VOCABULARY/WRITING -DEVELOPMENT	CONSUMER MATH
		‡ MONEY & CHANGE
CONCEPTS		‡ BANKING
ADDITION	ANALYZING WORD PROBLEMS	‡ FILLING OUT FORMS
SUBTRACTION	‡ LISTING KEY WORDS/PHRASES	‡ BUYING & DISCOUNTING
MULTIPLICATION	‡ USING KEY WORDS/PHRASES	‡ COMPARING PRICES
DIVISION	-IN WRITING WORD PROBLEMS	‡ AVERAGING
	‡ FLOW CHARTING WORD PROBLEMS	‡ JOBS AND PREPARATION
LEVEL II: FRACTIONS		‡ WANT ADS
	DAILY MATH LOGS	‡ ADVERTISEMENTS & COMMERCI
CONCEPTS	‡ SUMMARIES	‡ GAMES AND PROJECTS
ADDITION LIKE DENOM.	‡ OPINIONS	
ADD/MIXED N/LIKE DENOM.	‡ DESCRIPTIONS	MEASUREMENT
SUTRACTION MIXED N.	‡ PERSONAL NEEDS	‡ LINEAR (ENGLISH/METRIC
ADDITION/SUBTRACTION		‡ VOLUME
(UNLIKE DENOM.)	PATTERNS	‡ TEMPERATURE
MULTIPLICATION	‡ DISCOVERING MATH PATTERNS	‡ TIME
DIVISION	‡ EXPLAINING MATH PATTERNS	‡ GAMES AND PROJECTS
	‡ REPLICATING MATH PATTERNS	‡ AREA AND PERIMETER
LEVEL III: DECIMALS & PERCENTS	UNIFYING COMPUTATION TO -APPLICATION ACTIVITIES	GRAPHS AND TABLES
		‡ INTERPRETING
DECIMAL CONCEPTS		‡ CREATING
ADDITION & SUBTRACTION	USING THE COMPUTER AS A -TOOL IN MATHEMATICS	GEOMETRY
MULTIPLICATION		‡ PLANE
DIVISION		‡ SOLID
ROUNDING DECIMAL N.		‡ PROJECTS
PERCENT CONCEPTS		‡ APPLE LOGO
PERCENT APPLICATIONS		
		SPECIAL PROJECTS
		‡ CREATING OWN GAMES
		‡ COMPUTER PROGRAMS
		‡ INDIVIDUAL/GROUP PROJECTS
		‡‡‡‡SCIENCE FAIR
		‡‡‡‡DATA COLLECTING/ANALYSIS/ SYNTHESIS
		‡‡‡‡BRIDGE BUILDING
		‡‡‡‡SIMPLE MACHINES/RATIOS

COMPUTATION COMPONENTS - SUPPLEMENTARY ACTIVITIES APPENDIX B

FRACTIONS - SUPPLEMENTARY

TOPICS	HEATH - MATH	ELECTRIC DRILL	BASIC SKILLS
1. Concepts	P 172	55-70	
2. Prper/Impr/Mixed		71-72	
3. Impr=Mixed			
4. Number line			
5. Equivalences	PP 172-173	101-104	
6. Reducing	P 176-177	87-88	
7. Simplifying	P 187	91-94	
8. Reduc/Simplify		95-95	
9. Add/Like/Denom	P 180	121-130; 145-150	
10. Sub/Like/Denom	P 182	175-182	
11. Change Imp/Mix			40-41
12. Borrowing			58-59
13. Sub w/Borrow		195-198	60-61
14. Sub f/Whole N		191-194	62-63
15. LCD	P 114	105-106	76
16. Add/Regr/UnlkD	P 180-84, 188-89	151-160; 131-144	
17. Sub/Regr/UnlkD	P 183-84; 190-92	183-190; 199-202	
18. Multiplication	P 204-205	221-228	95-96
19. Ch WN/Mxd to FR	P 207	99-100	99
20. Mult Mxd/Fr/WN	P 206; 227	229-248	
21. Division	P 210-14; 217-29	267-194	

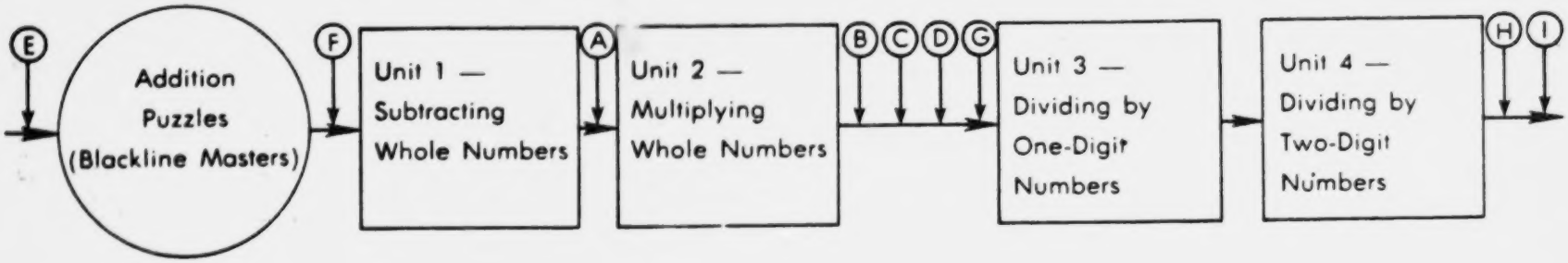
PERCENT - SUPPLEMENTARY

1. Ratio	P 240-241		
	Enrich P 66		
	WS P 66		
2. ?/100		45, 46, 49, 50	
3. Estimation			78, 79
4. % >< Decimal	P 254, 255	63, 64, 67, 68	
5. % of N = ?	P 259-261	97-106	
	BWS 72		
6. % of ? = N	P 262-263	233-242	
	BWS 73		
7. N = ?% of N		173-184	

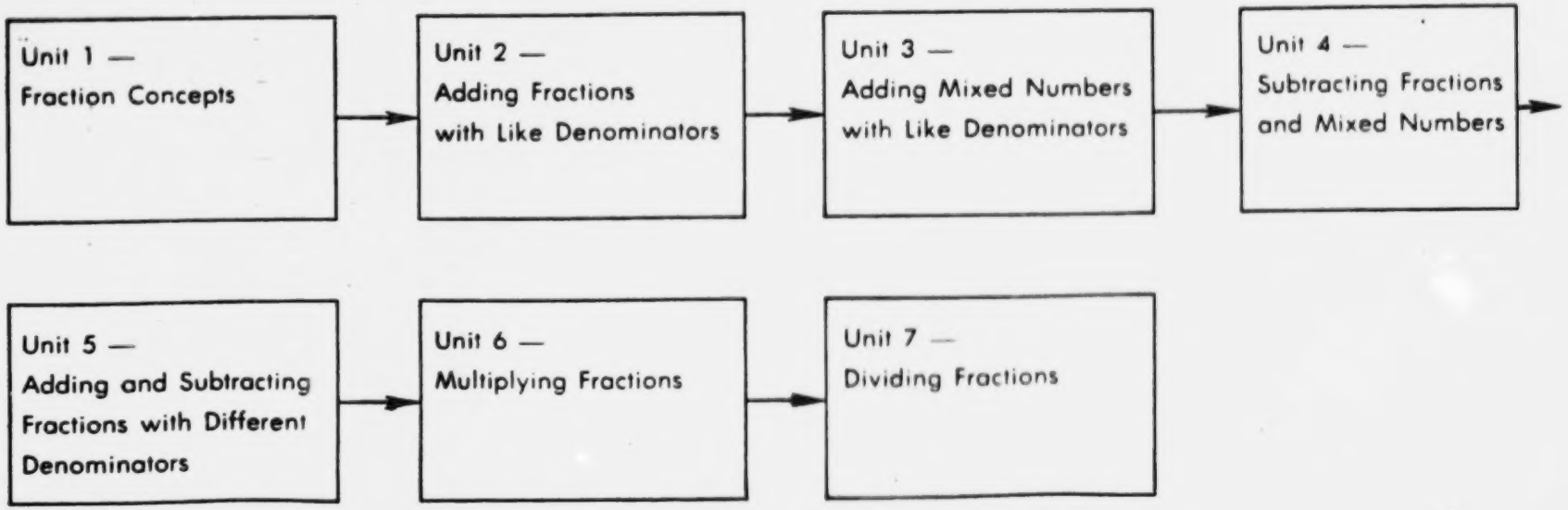
Flow Chart of Units

A circled letter indicates the first point at which each unit in METRIC MEASUREMENT and INDEPENDENT UNITS may be used.

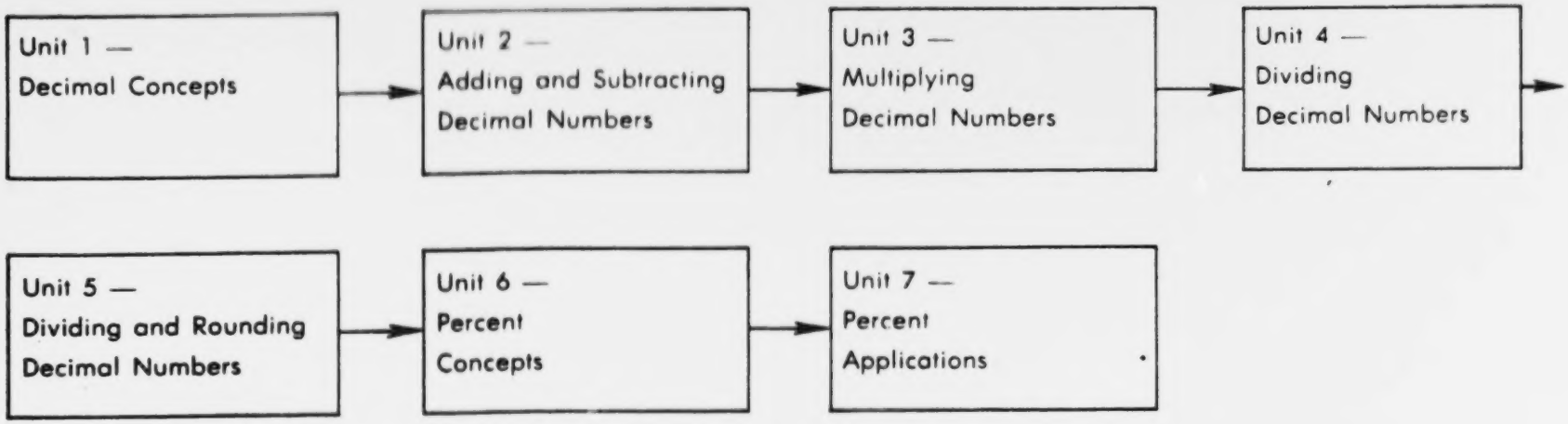
WHOLE NUMBERS



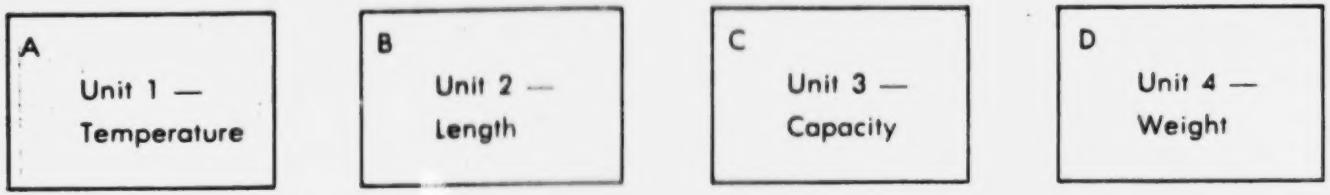
FRACTIONS


Unit 1 — Fraction Concepts
Unit 2 — Adding Fractions with Like Denominators
Unit 3 — Adding Mixed Numbers with Like Denominators
Unit 4 — Subtracting Fractions and Mixed Numbers
Unit 5 — Adding and Subtracting Fractions with Different Denominators
Unit 6 — Multiplying Fractions
Unit 7 — Dividing Fractions

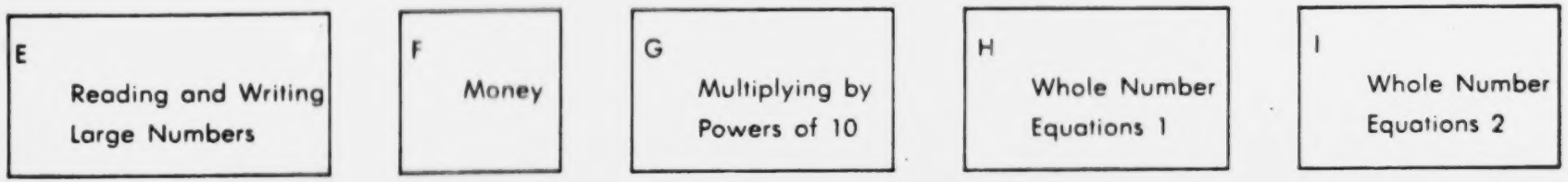
DECIMALS AND PERCENTS

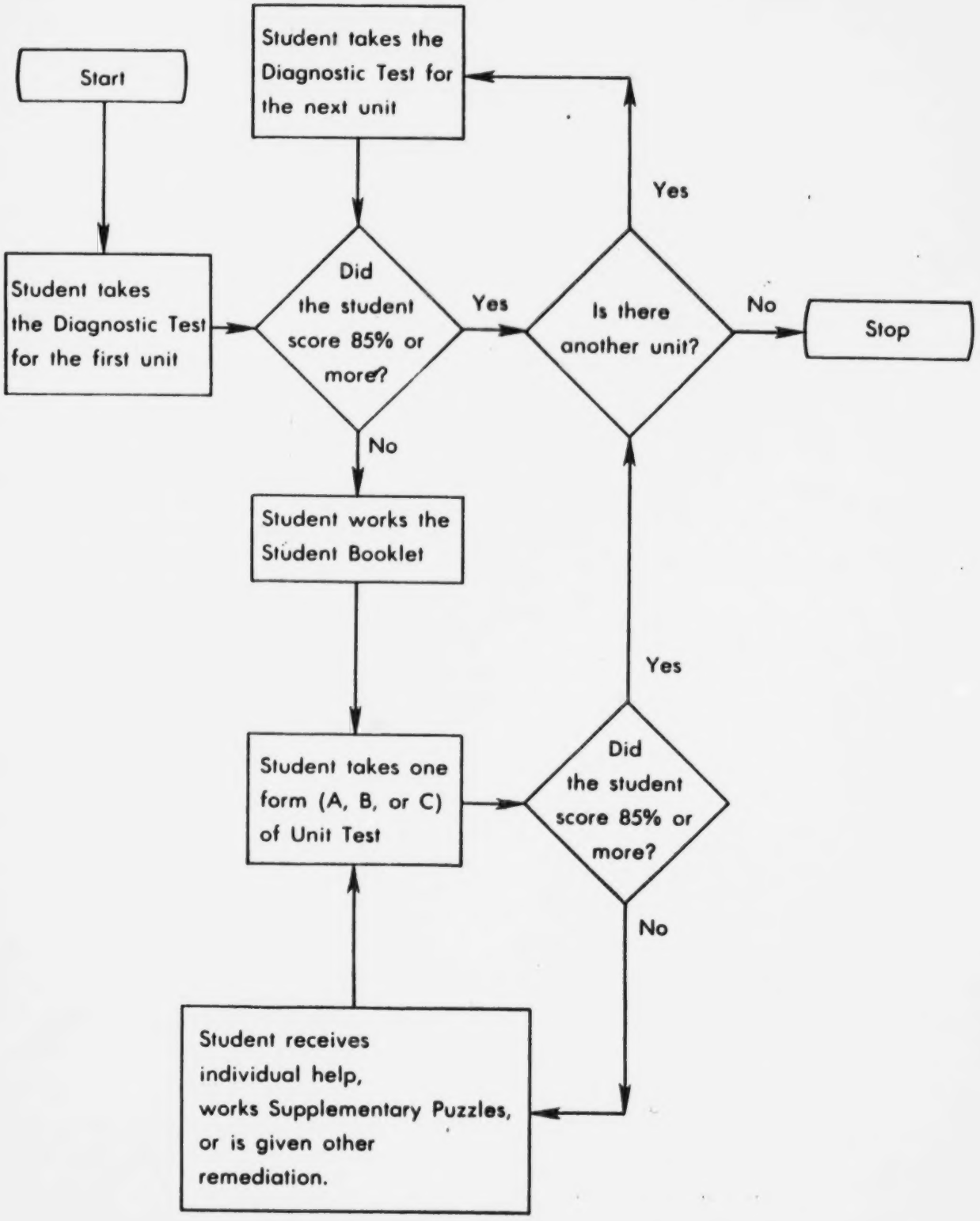

Unit 1 — Decimal Concepts
Unit 2 — Adding and Subtracting Decimal Numbers
Unit 3 — Multiplying Decimal Numbers
Unit 4 — Dividing Decimal Numbers
Unit 5 — Dividing and Rounding Decimal Numbers
Unit 6 — Percent Concepts
Unit 7 — Percent Applications

METRIC MEASUREMENT



INDEPENDENT UNITS




Start
Student takes the Diagnostic Test for the next unit
Student takes the Diagnostic Test for the first unit
Did the student score 85% or more?
Yes
Is there another unit?
No
Stop
Yes
No
Student works the Student Booklet
Yes
Student takes one form (A, B, or C) of Unit Test
Did the student score 85% or more?
No
Student receives individual help, works Supplementary Puzzles, or is given other remediation.

Working Through The Units

EQUIPMENT, SUPPLIES, AND TEXTBOOKS APPENDIX D

1. EQUIPMENT - AVAILABLE AT THE SCHOOL LEVEL

   1.1 Xerox Machine - AV Room, Room 227
   1.2 Ditto Machine - AV Room, Room 227
   1.3 Overhead Projector - Room 227
   1.4 VCR and TV set - Room 227
   1.5 Filmstrip Projector - Room 227
   1.6 Film Projector - Room 227
   1.7 Computer (1) - Room 223
   1.8 Computer (17) - Computer Lab Room 118
   1.9 Telephone (1) - Room 227

2. SUPPLIES - AVAILABLE AT THE SCHOOL LEVEL

   2.1 Oak Tag - Room 227
   2.2 Colored Paper - AV Room, Room 227
   2.3 Paste/Glue Materials - Room 227
   2.4 Scissors - Room 227

3. CURRICULUM SUPPLIES - AVAILABLE AT THE SCHOOL LEVEL

   3.1 Basic Computation Program Materials (Addison Wesley) Room 223
   3.2 Stanford Diagnostic Math Test Booklets, Answer Sheets, and Teachers Manual Rooms 223, 203, 204
   3.3 Taskmaster Rooms 223, 203, 204
   3.4 Key Curriculum Project Materials Room 223
   3.5 Love Basic Mathematics Ditto Masters Room 223
   3.6 Spectrum Math Workbooks Room 223
   3.7 American Power Master Series Duplicating Books Room 223
   3.8 Consumer Math Room 223
   3.9 Problem Solving Skills Book A
   3.10 Measure Up

4. TEXTBOOKS - AVAILABLE AT THE SCHOOL LEVEL (Rm. 223)

   4.1 Math Around Us (L. Carey Bolster) Scott Foresman & Co.
   4.2 Heath Mathematics (Walter E. Rucker & Clyde A. Dilley) D. C. Heath and Co.

5. COMPUTER PROGRAMS - AVAILABLE AT THE SCHOOL LEVEL (Rm. 223 Rm. 118)

   5.1 XC 432 Addition/Subtraction Fractions
   5.2 XC 3192 Reading/Solving Math Problems
   5.3 SS208-AP Logic Levels
   5.4 Decoxap Math 1-The Mechanics of Word Problems
   5.5 Decoxap Math 2-Building Word Problems
   5.6 Apple Logo
   5.7 Bank Stree Writer/Speller
   5.8 MECC: Auto Tech Math Vol. 1
   5.9 MECC: Auto Tech Math Vol. 2 1

5.10 MECC: Adventure with Fractions
5.11 MECC: Estimation
5.12 MECC: Graphing
5.13 MECC: Multiplication Puzzles
5.14 MECC: Mastering Math Management System
5.15 MECC: Mastering Math Worksheet Generator
5.16 MECC: Speedway Math
5.17 MECC: Circus Math
5.18 MECC: Number Munchers

6. GAMES - AVAILABLE AT THE SCHOOL LEVEL (Rm. 223)
   6.1 Bank Account
   6.2 Department Store Math
   6.3 Shopping Bag
   6.4 Big Deal
   6.5 Math Around School

STUDENT SCHEDULE AND RECORD SHEET APPENDIX E-1

NAME_____ PD. _____ LEVEL_____

DAY	LAB	BOOK	LESSONS 1	2	3	4	5	6	7	8	9	10
MONDAY												
TUESDAY												
WEDNESDAY												
THURSDAY												
FRIDAY												

NUMBER OF BOOKS COMPLETED:

QTR 1= _____ QTR 3=_____
QTR 2=_____ QTR 4=_____
SEM 1=_____ SEM 2=_____

NAME_____ QUARTER _____ APPENDIX E-2

DATE	SUBJ	DLY	TEST	AVG	HOMEWORK	COMMENTS	DATE	SUBJ	DLY	TEST	AVG	HOMEWORK	COMMENTS